



## SEQUENCE LISTING

Laughran, Thomas Jr.  
Kothapalli, Ravi

<120> Sphingosine 1-Phosphate Receptor Gene, SPPR

<130> USF-T154X

<140> US 10/024,019

<141> 2001-12-21

<150> US 60/257,119

<151> 2000-12-22

<160> 14

<170> PatentIn version 3.1

<210> 1

<211> 17

<212> DNA

<213> Artificial Sequence

<220>

<223> Probe (see p. 8 of specification)

<400> 1

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<212> DNA

<213> Artificial Sequence

<220>

<223> Probe (see p. 8 of specification)

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<210> 3

<211> 398

<212> PRT

<213> Homo sapiens

<220>

<221> MISC\_FEATURE

<223> Human sphingosine 1-Phosphate receptor (SPPR) amino acid sequence  
(Figure 3)

<400> 3

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Met Glu Ser Gly Leu Leu Arg Pro Ala Pro Val Ser Glu Val Ile Val
1           5           10           15

Leu His Tyr Asn Tyr Thr Gly Lys Leu Arg Gly Ala Arg Tyr Gln Pro
          20           25           30

Gly Ala Gly Leu Arg Ala Asp Ala Val Val Cys Leu Ala Val Cys Ala
          35           40           45

Phe Ile Val Leu Glu Asn Leu Ala Val Leu Leu Val Leu Gly Arg His
          50           55           60

Pro Arg Phe His Ala Pro Met Phe Leu Leu Leu Gly Ser Leu Thr Leu
65           70           75           80

Ser Asp Leu Leu Ala Gly Ala Ala Tyr Ala Ala Asn Ile Leu Leu Ser
          85           90           95

Gly Pro Leu Thr Leu Lys Leu Ser Pro Ala Leu Trp Phe Ala Arg Glu
          100          105          110

Gly Gly Val Phe Val Ala Leu Thr Ala Ser Val Leu Ser Leu Leu Ala
          115          120          125

Ile Ala Leu Glu Arg Ser Leu Thr Met Ala Arg Arg Gly Pro Ala Pro
          130          135          140

Val Ser Ser Arg Gly Arg Thr Leu Ala Met Ala Ala Ala Ala Trp Gly
145           150           155           160

Val Ser Leu Leu Leu Gly Leu Leu Pro Ala Leu Gly Trp Asn Cys Leu
          165          170          175

Gly Arg Leu Asp Ala Cys Ser Thr Val Leu Pro Leu Tyr Ala Lys Ala
          180          185          190

Tyr Val Leu Phe Cys Val Leu Ala Phe Val Gly Ile Leu Ala Ala Ile
          195          200          205

Cys Ala Leu Tyr Ala Arg Ile Tyr Cys Gln Val Arg Ala Asn Ala Arg
          210          215          220

Arg Leu Pro Ala Arg Pro Gly Thr Ala Gly Thr Thr Ser Thr Arg Ala
225           230           235           240

Arg Arg Lys Pro Arg Ser Leu Ala Leu Leu Arg Thr Leu Ser Val Val
          245          250          255

Leu Leu Ala Phe Val Ala Cys Trp Gly Pro Leu Phe Leu Leu Leu Leu
          260          265          270

Leu Asp Val Ala Cys Pro Ala Arg Thr Cys Pro Val Leu Leu Gln Ala
          275          280          285

Asp Pro Phe Leu Gly Leu Ala Met Ala Asn Ser Leu Leu Asn Pro Ile
          290          295          300

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Ile Tyr Thr Leu Thr Asn Arg Asp Leu Arg His Ala Leu Leu Arg Leu  
305 310 315 320

Val Cys Cys Gly Arg His Ser Cys Gly Arg Asp Pro Ser Gly Ser Gln  
325 330 335

Gln Ser Ala Ser Ala Ala Glu Ala Ser Gly Gly Leu Arg Arg Cys Leu  
340 345 350

Pro Pro Gly Leu Asp Gly Ser Phe Ser Gly Ser Glu Arg Ser Ser Pro  
355 360 365

Gln Arg Asp Gly Leu Asp Thr Ser Gly Ser Thr Gly Ser Pro Gly Ala  
370 375 380

Pro Thr Ala Ala Arg Thr Leu Val Ser Glu Pro Ala Ala Asp  
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<213> Homo sapiens

<220>

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<223> Human sphingosine 1-Phosphate receptor (SPPR) cDNA sequence  
(Figure 3)

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gccgacgccg tgggtgtgctt ggcgggtgtgc gccttcacgc tgctagagaa tctagccgtg      180
ttgttggtgc tcggacgcca cccgcgcttc cacgctccca tgttcctgct cctgggcagc      240
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&lt;221&gt; MISC\_FEATURE

&lt;223&gt; Nrg-1 rat genes (Figure 4)

&lt;400&gt; 5

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Met Glu Ser Gly Leu Leu Arg Pro Ala Pro Val Ser Glu Val Ile Val
1           5           10           15

Leu His Tyr Asn Tyr Thr Gly Lys Leu Arg Gly Ala Arg Tyr Gln Pro
          20           25           30

Gly Ala Gly Leu Arg Ala Asp Ala Ala Val Cys Leu Ala Val Cys Ala
          35           40           45

Phe Ile Val Leu Glu Asn Leu Ala Val Leu Leu Val Leu Gly Arg His
          50           55           60

Pro Arg Phe His Ala Pro Met Phe Leu Leu Leu Gly Ser Leu Thr Leu
65           70           75           80

Ser Asp Leu Leu Ala Gly Ala Ala Tyr Ala Thr Asn Ile Leu Leu Ser
          85           90           95

Gly Pro Leu Thr Leu Arg Leu Ser Pro Ala Leu Trp Phe Ala Arg Glu
          100          105          110

Gly Gly Val Phe Val Ala Leu Ala Ala Ser Val Leu Ser Leu Leu Ala
          115          120          125

Ile Ala Ile Glu Arg His Leu Thr Met Ala Arg Arg Gly Pro Ala Pro
          130          135          140

Ala Ala Ser Arg Ala Arg Thr Leu Ala Met Ala Val Ala Ala Trp Gly
145           150           155           160

Leu Leu Leu Thr Leu Gly Leu Leu Pro Ala Leu Gly Trp Asn Cys Leu
          165          170          175

Gly Arg Leu Glu Ala Cys Ser Thr Val Leu Pro Val Tyr Ala Lys Ala
          180          185          190

Tyr Val Leu Phe Cys Val Leu Ala Phe Leu Gly Ile Leu Ala Ala Ile
          195          200          205

Cys Ala Leu Tyr Ala Arg Ile Tyr Cys Gln Val Arg Ala Asn Ala Arg
          210          215          220

Arg Leu Arg Ala Gly Pro Gly Ser Arg Arg Ala Thr Ser Ser Ser Arg
225           230           235           240

Ser Arg His Thr Pro Arg Ser Leu Ala Leu Leu Arg Thr Leu Ser Val
          245          250          255

Val Leu Leu Ala Phe Val Ala Cys Trp Gly Pro Leu Phe Leu Leu Leu
          260          265          270

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Leu Leu Asp Val Ala Cys Pro Ala Arg Ala Cys Pro Val Leu Leu Gln  
 275 280 285  
 Ala Asp Pro Phe Leu Gly Leu Ala Met Ala Asn Ser Leu Leu Asn Pro  
 290 295 300  
 Ile Ile Tyr Thr Phe Thr Asn Arg Asp Leu Arg His Ala Leu Leu Arg  
 305 310 315 320  
 Leu Leu Cys Cys Gly Arg Gly Pro Cys Asn Gln Asp Ser Ser Asn Ser  
 325 330 335  
 Leu Gln Arg Ser Pro Ser Ala Val Gly Pro Ser Gly Gly Gly Leu Arg  
 340 345 350  
 Arg Cys Leu Pro Pro Thr Leu Asp Arg Ser Ser Ser Pro Ser Glu His  
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 Ser Cys Pro Gln Arg Asp Gly Met Asp Thr Ser Cys Ser Thr Gly Ser  
 370 375 380  
 Pro Gly Ala Ala Thr Ala Asn Arg Thr Leu Val Pro Asp Ala Thr Asp  
 385 390 395 400

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 <223> EDG-8 rat genes (Figure 4)  
  
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 Leu His Tyr Asn Tyr Thr Gly Lys Leu Arg Gly Ala Arg Tyr Gln Pro  
 20 25 30  
 Gly Ala Gly Leu Arg Ala Asp Ala Ala Val Cys Leu Ala Val Cys Ala  
 35 40 45  
 Phe Ile Val Leu Glu Asn Leu Ala Val Leu Leu Val Leu Gly Arg His  
 50 55 60  
 Pro Arg Phe His Ala Pro Met Phe Leu Leu Leu Gly Ser Leu Thr Leu  
 65 70 75 80  
 Ser Asp Leu Leu Ala Gly Ala Ala Tyr Ala Thr Asn Ile Leu Leu Ser  
 85 90 95  
 Gly Pro Leu Thr Leu Arg Leu Ser Pro Ala Leu Trp Phe Ala Arg Glu  
 100 105 110

Gly Gly Val Phe Val Ala Leu Ala Ala Ser Val Leu Ser Leu Leu Ala  
 115 120 125  
 Ile Ala Leu Glu Arg His Leu Thr Met Ala Arg Arg Gly Pro Ala Pro  
 130 135 140  
 Ala Ala Ser Arg Ala Arg Thr Leu Ala Met Ala Val Ala Ala Trp Gly  
 145 150 155 160  
 Leu Ser Leu Leu Leu Gly Leu Leu Pro Ala Leu Gly Trp Asn Cys Leu  
 165 170 175  
 Gly Arg Leu Glu Ala Cys Ser Thr Val Leu Pro Leu Tyr Ala Lys Ala  
 180 185 190  
 Tyr Val Leu Phe Cys Val Leu Ala Phe Leu Gly Ile Leu Ala Ala Ile  
 195 200 205  
 Cys Ala Leu Tyr Ala Arg Ile Tyr Cys Gln Val Arg Ala Asn Ala Arg  
 210 215 220  
 Arg Leu Arg Ala Gly Pro Gly Ser Arg Arg Ala Thr Ser Ser Ser Arg  
 225 230 235 240  
 Ser Arg His Thr Pro Arg Ser Leu Ala Leu Leu Arg Thr Leu Ser Val  
 245 250 255  
 Val Leu Leu Ala Phe Val Ala Cys Trp Gly Pro Leu Phe Leu Leu Leu  
 260 265 270  
 Leu Leu Asp Val Ala Cys Pro Ala Arg Ala Cys Pro Val Leu Leu Gln  
 275 280 285  
 Ala Asp Pro Phe Leu Gly Leu Ala Met Ala Asn Ser Leu Leu Asn Pro  
 290 295 300  
 Ile Ile Tyr Thr Phe Thr Asn Arg Asp Leu Arg His Ala Leu Leu Arg  
 305 310 315 320  
 Leu Leu Cys Cys Gly Arg Gly Pro Cys Asn Gln Asp Ser Ser Asn Ser  
 325 330 335  
 Leu Gln Arg Ser Pro Ser Ala Val Gly Pro Ser Gly Gly Gly Leu Arg  
 340 345 350  
 Arg Cys Leu Pro Pro Thr Leu Asp Arg Ser Ser Ser Pro Ser Glu His  
 355 360 365  
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 Pro Gly Ala Ala Thr Ala Asn Arg Thr Leu Val Pro Asp Ala Thr Asp  
 385 390 395 400

<210> 7  
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<212> PRT  
 <213> Homo sapiens

<220>  
 <221> MISC\_FEATURE  
 <223> SPPR (Figure 4)

<400> 7

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Gly	Ala	Gly	Leu	Arg	Ala	Asp	Ala	Val	Val	Cys	Leu	Ala	Val	Cys	Ala	35	40	45	
Phe	Ile	Val	Leu	Glu	Asn	Leu	Ala	Val	Leu	Leu	Val	Leu	Gly	Arg	His	50	55	60	
Pro	Arg	Phe	His	Ala	Pro	Met	Phe	Leu	Leu	Leu	Gly	Ser	Leu	Thr	Leu	65	70	75	80
Ser	Asp	Leu	Leu	Ala	Gly	Ala	Ala	Tyr	Ala	Ala	Asn	Ile	Leu	Leu	Ser	85	90	95	
Gly	Pro	Leu	Thr	Leu	Lys	Leu	Ser	Pro	Ala	Leu	Trp	Phe	Ala	Arg	Glu	100	105	110	
Gly	Gly	Val	Phe	Val	Ala	Leu	Thr	Ala	Ser	Val	Leu	Ser	Leu	Leu	Ala	115	120	125	
Ile	Ala	Leu	Glu	Arg	Ser	Leu	Thr	Met	Ala	Arg	Arg	Gly	Pro	Ala	Pro	130	135	140	
Val	Ser	Ser	Arg	Gly	Arg	Thr	Leu	Ala	Met	Ala	Ala	Ala	Ala	Trp	Gly	145	150	155	160
Val	Ser	Leu	Leu	Leu	Gly	Leu	Leu	Pro	Ala	Leu	Gly	Trp	Asn	Cys	Leu	165	170	175	
Gly	Arg	Leu	Asp	Ala	Cys	Ser	Thr	Val	Leu	Pro	Leu	Tyr	Ala	Lys	Ala	180	185	190	
Tyr	Val	Leu	Phe	Cys	Val	Leu	Ala	Phe	Val	Gly	Ile	Leu	Ala	Ala	Ile	195	200	205	
Cys	Ala	Leu	Tyr	Ala	Arg	Ile	Tyr	Cys	Gln	Val	Arg	Ala	Asn	Ala	Arg	210	215	220	
Arg	Leu	Pro	Ala	Arg	Pro	Gly	Thr	Ala	Gly	Thr	Thr	Ser	Thr	Arg	Ala	225	230	235	240
Arg	Arg	Lys	Pro	Arg	Ser	Leu	Ala	Leu	Leu	Arg	Thr	Leu	Ser	Val	Val	245	250	255	



Leu Leu Ala Phe Val Ala Cys Trp Gly Pro Leu Phe Leu Leu Leu Leu  
 260 265 270

Leu Asp Val Ala Cys Pro Ala Arg Thr Cys Pro Val Leu Leu Gln Ala  
 275 280 285

Asp Pro Phe Leu Gly Leu Ala Met Ala Asn Ser Leu Leu Asn Pro Ile  
 290 295 300

Ile Tyr Thr Leu Thr Asn Arg Asp Leu Arg His Ala Leu Leu Arg Leu  
 305 310 315 320

Val Cys Cys Gly Arg His Ser Cys Gly Arg Asp Pro Ser Gly Ser Gln  
 325 330 335

Gln Ser Ala Ser Ala Ala Glu Ala Ser Gly Gly Leu Arg Arg Cys Leu  
 340 345 350

Pro Pro Gly Leu Asp Gly Ser Phe Ser Gly Ser Glu Arg Ser Ser Pro  
 355 360 365

Gln Arg Asp Gly Leu Asp Thr Ser Gly Ser Thr Gly Ser Pro Gly Ala  
 370 375 380

Pro Thr Ala Ala Arg Thr Leu Val Ser Glu Pro Ala Ala Asp  
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<212> PRT

<213> Homo sapiens

<220>

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<223> Sphingosine-1- phosphate receptor.1 (Figure 5)

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Met Glu Ser Gly Leu Leu Arg Pro Ala Pro Val Ser Glu Val Ile Val  
 1 5 10 15

Leu His Tyr Asn Tyr Thr Gly Lys Leu Arg Gly Ala Arg Tyr Gln Pro  
 20 25 30

Gly Ala Gly Leu Arg Ala Asp Ala Val Val Cys Leu Ala Val Cys Ala  
 35 40 45

Phe Ile Val Leu Glu Asn Leu Ala Val Leu Leu Val Leu Gly Arg His  
 50 55 60

Pro Arg Phe His Ala Pro Met Phe Leu Leu Leu Gly Ser Leu Thr Leu  
 65 70 75 80

Ser Val Pro Ala Arg Pro Gly Thr Ala Gly Thr Thr Ser Thr Arg Ala  
 85 90 95

Arg Arg Lys Pro Arg Ser Leu Ala Leu Leu Arg Thr Leu Ser Val Val  
 100 105 110  
 Leu Leu Ala Phe Val Ala Cys Trp Gly Pro Leu Phe Leu Leu Leu Leu  
 115 120 125  
 Leu Asp Val Ala Cys Pro Ala Arg Thr Cys Pro Val Leu Leu Gln Ala  
 130 135 140  
 Asp Pro Phe Leu Gly Leu Ala Met Ala Asn Ser Leu Leu Asn Pro Ile  
 145 150 155 160  
 Ile Tyr Thr Leu Thr Asn Arg Asp Leu Arg His Ala Leu Leu Arg Leu  
 165 170 175  
 Val Cys Cys Gly Arg His Ser Cys Gly Arg Asp Pro Ser Gly Ser Gln  
 180 185 190  
 Gln Ser Ala Ser Ala Ala Glu Ala Ser Gly Gly Leu Arg Arg Cys Leu  
 195 200 205  
 Pro Pro Gly Leu Asp Gly Ser Phe Ser Gly Ser Glu Arg Ser Ser Pro  
 210 215 220  
 Gln Arg Asp Gly Leu Asp Thr Ser Gly Ser Thr Gly Ser Pro Gly Ala  
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 Pro Thr Ala Ala Arg Thr Leu Val Ser Glu Pro Ala Ala Asp  
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<213> Homo sapiens

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 cctcacgttg tcggtgccgg caccggccgg gactgcgggg accacctcga ccggggcgcg 300  
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 ggcattgttg gggccccctt tcctgctgct gttgctcgac gtggcgtgcc cggcgcgcac 420  
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 gaaccccatc atctacacgc tcaccaaccg cgacctgcgc caccgctcc tgccgctggt 540

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<223> Sphingosine-1- phosphate receptor (SIP) (Figure 5)

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<400> 10

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Met Glu Ser Gly Leu Leu Arg Pro Ala Pro Val Ser Glu Val Ile Val
1           5           10           15

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Leu His Tyr Asn Tyr Thr Gly Lys Leu Arg Gly Ala Arg Tyr Gln Pro  
 20 25 30  
 Gly Ala Gly Leu Arg Ala Asp Ala Val Val Cys Leu Ala Val Cys Ala  
 35 40 45  
 Phe Ile Val Leu Glu Asn Leu Ala Val Leu Leu Val Leu Gly Arg His  
 50 55 60  
 Pro Arg Phe His Ala Pro Met Phe Leu Leu Leu Gly Ser Leu Thr Leu  
 65 70 75 80  
 Ser Asp Leu Leu Ala Gly Ala Ala Tyr Ala Ala Asn Ile Leu Leu Ser  
 85 90 95  
 Gly Pro Leu Thr Leu Lys Leu Ser Pro Ala Leu Trp Phe Ala Arg Glu  
 100 105 110  
 Gly Gly Val Phe Val Ala Leu Thr Ala Ser Val Leu Ser Leu Leu Ala  
 115 120 125  
 Ile Ala Leu Glu Arg Ser Leu Thr Met Ala Arg Arg Gly Pro Ala Pro  
 130 135 140  
 Val Ser Ser Arg Gly Arg Thr Leu Ala Met Ala Ala Ala Ala Trp Gly  
 145 150 155 160  
 Val Ser Leu Leu Leu Gly Leu Leu Pro Ala Leu Gly Trp Asn Cys Leu  
 165 170 175  
 Gly Arg Leu Asp Ala Cys Ser Thr Val Leu Pro Leu Tyr Ala Lys Ala  
 180 185 190  
 Tyr Val Leu Phe Cys Val Leu Ala Phe Val Gly Ile Leu Ala Ala Ile  
 195 200 205  
 Cys Ala Leu Tyr Ala Arg Ile Tyr Cys Gln Val Arg Ala Asn Ala Arg  
 210 215 220  
 Arg Leu Pro Ala Arg Pro Gly Thr Ala Gly Thr Thr Ser Thr Arg Ala  
 225 230 235 240  
 Arg Arg Lys Pro Arg Ser Leu Ala Leu Leu Arg Thr Leu Ser Val Val  
 245 250 255  
 Leu Leu Ala Phe Val Ala Cys Trp Gly Pro Leu Phe Leu Leu Leu Leu  
 260 265 270  
 Leu Asp Val Ala Cys Pro Ala Arg Thr Cys Pro Val Leu Leu Gln Ala  
 275 280 285  
 Asp Pro Phe Leu Gly Leu Ala Met Ala Asn Ser Leu Leu Asn Pro Ile  
 290 295 300  
 Ile Tyr Thr Leu Thr Asn Arg Asp Leu Arg His Ala Leu Leu Arg Leu  
 305 310 315 320

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<210> 11
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<213> Homo sapiens

<220>
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<223> Sphingosine-1- phosphate receptor.1 (SIP1) (Figure 5)

<400> 11
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Ile Tyr Thr Leu Thr Asn Arg Asp Leu Arg His Ala Leu Leu Arg Leu  
                           165                          170                          175

Val Cys Cys Gly Arg His Ser Cys Gly Arg Asp Pro Ser Gly Ser Gln  
                           180                          185                          190

Gln Ser Ala Ser Ala Ala Glu Ala Ser Gly Gly Leu Arg Arg Cys Leu  
                           195                          200                          205

Pro Pro Gly Leu Asp Gly Ser Phe Ser Gly Ser Glu Arg Ser Ser Pro  
                           210                          215                          220

Gln Arg Asp Gly Leu Asp Thr Ser Gly Ser Thr Gly Ser Pro Gly Ala  
                           225                          230                          235                          240

Pro Thr Ala Ala Arg Thr Leu Val Ser Glu Pro Ala Ala Asp  
                           245                          250

<210> 12  
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<220>  
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 <223> Sphingosine -1-Phosphate receptor 2 (Figure 6)

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Met Glu Ser Gly Leu Leu Arg Pro Ala Pro Val Ser Glu Val Ile Val  
 1                          5                          10                          15

Leu His Tyr Asn Tyr Thr Gly Lys Leu Arg Gly Ala Arg Tyr Gln Pro  
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Gly Ala Gly Leu Arg Ala Asp Ala Val Val Cys Leu Ala Val Cys Ala  
                           35                          40                          45

Phe Ile Val Leu Glu Asn Leu Ala Val Leu Leu Val Leu Gly Arg His  
                           50                          55                          60

Pro Arg Phe His Ala Pro Met Phe Leu Leu Leu Gly Ser Leu Thr Leu  
 65                          70                          75                          80

Ser Asp Leu Leu Ala Gly Ala Ala Tyr Ala Ala Ala Ala Arg Thr Leu  
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Val Ser Glu Pro Ala Ala Asp  
                           100

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 <212> DNA  
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&lt;223&gt; Sphingosine -1-Phosphate receptor 2 (Figure 6)

&lt;400&gt; 13

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&lt;223&gt; Sphingosine -1-Phosphate receptor 2 (SIP2) (Figure 6)

&lt;400&gt; 14

Met Glu Ser Gly Leu Leu Arg Pro Ala Pro Val Ser Glu Val Ile Val  
 1 5 10 15

Leu His Tyr Asn Tyr Thr Gly Lys Leu Arg Gly Ala Arg Tyr Gln Pro  
 20 25 30

Gly Ala Gly Leu Arg Ala Asp Ala Val Val Cys Leu Ala Val Cys Ala  
 35 40 45

Phe Ile Val Leu Glu Asn Leu Ala Val Leu Leu Val Leu Gly Arg His  
 50 55 60

Pro Arg Phe His Ala Pro Met Phe Leu Leu Leu Gly Ser Leu Thr Leu  
 65 70 75 80

Ser Asp Leu Leu Ala Gly Ala Ala Tyr Ala Ala Ala Ala Arg Thr Leu  
 85 90 95

Val Ser Glu Pro Ala Ala Asp  
 100